

AMENDMENTS TO THE CLAIMS:

If entered, this listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A color imaging system for compensating a color response, the system comprising:
  - an array of pixel sensor elements;
  - a color filter including a plurality of color
  - 5 filter components organized in a predefined pattern, the color filter overlaying at least a portion of the array, wherein said pixel sensor elements include at least one element associated with a first color filter component, at least one element associated with a second color filter
  - 10 component, and at least one element associated with a third color filter component;
  - a first analog compensation unit coupled to at least one element associated with the first color filter component, said first analog compensation unit adapted to
  - 15 modify a readout of the at least one element associated with the first color filter component;
  - a second analog compensation unit coupled to the

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at least one element associated with the second color  
filter component, and second analog compensation unit

20 adapted to modify a readout of the at least one element  
associated with the second color filter component;

an analog summing amplifier coupled to two elements  
associated with the third color filter component and  
outputting an analog sum of said two elements;

25 a third analog compensation unit coupled to said  
analog sum, said third analog compensation unit adapted to  
modify a readout of said analog sum; and

an array controller adapted to control the readout of  
the elements associated with the first, second and third  
30 color components wherein said array controller directs said  
readout of said first, second, and third color filter  
components in a selected window of said array while other  
sections of said array are not processed wherein said array  
controller uses a programmable digital pattern generator to  
35 determine said selected window.

2. (Canceled)

3. (Original) The system of Claim 1, wherein at least a  
portion of the array elements arranged in a plurality of  
rows and columns.

4. (Original) The system of Claim 1, wherein the array controller is adapted to control the readout of a plurality of pixel sensor elements in parallel.

5. (Canceled)

6. (Original) The system of Claim 1, wherein the analog compensation units are gain amplifiers.

7. (Original) The system of Claim 1, wherein the analog compensation units are programmable gain amplifiers.

8. (Original) The system of Claim 7, wherein the programmable gain amplifiers are implemented as a separate stage.

9. (Original) The system of Claim 7, wherein the programmable gain amplifiers are contained within a pixel circuitry of the array.

10. (Original) The system of Claim 7, wherein the programmable gain amplifiers are within a plurality of column buffers.

11. (Canceled)

12. (Original) The system of Claim 1, wherein the color filter components include the colors of red, blue and green.

13. (Original) The system of Claim 1 wherein the array controller causes an independent readout for a set of even-numbered rows and an independent readout for a set of odd-numbered rows to control color compensation or each color component.

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14. (Original) The system of Claim 1, wherein the array controller causes an independent readout for even-numbered columns and an independent readout for odd-numbered columns to control color compensation of each color component.

15. (Original) The system of Claim 1, wherein the array controller causes a plurality of substantially simultaneous, independent readouts for a plurality of rows and some columns.

16. (Original) The system of Claim 1, wherein the pixel

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sensor elements from a portion of a charged coupled device.

17. (Original) The system of Claim 1, wherein the pixel sensor elements form a portion of a complementary metal oxide semiconductor device.

18. (Original) The system of Claim 1, wherein at least a portion of the pixel sensor elements are active.

19. (Original) The system of Claim 1, wherein at least a portion of the pixel sensor elements are passive.

20. (Original) The system of Claim 1, wherein at least a first pixel sensor element is associated with a different color filter component than a second, neighboring pixel sensor element.

21. (Original) The system of Claim 1, wherein the predefined pattern is a Bayer color configuration.

22. (Original) The system of Claim 1, wherein the predefined pattern comprises the colors of yellow, cyan and magenta.

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23. (Original) The system of Claim 1, further comprising a micro-lenses layer.

24. (Canceled)

25. (Canceled)

26. (Currently Amended) A method of compensating a color response in an analog domain of an array of pixel sensor elements, the method comprising:

amplifying an analog output from a plurality of  
5 elements of a first color component;

amplifying an analog output from a plurality of  
elements of a second color component wherein two said  
element outputs are summed together prior to said  
amplifying; and

10 generating a compensated analog readout of the  
plurality of elements of the first color component wherein  
only a selected window of said array is processed while  
other sections of said array are not processed wherein said  
selected window is determined by a programmable digital  
15 pattern generator.

27. (Canceled)

28. (Original) The method of Claim 26, wherein the act of generating a compensated analog readout comprises amplifying the analog readout for the plurality of elements of the first color component with a first programmable gain  
5 amplifier.

29. (Original) The method of Claim 26, further comprising determining an optimal level of color compensation for the analog readout of the plurality of elements of the first color component.

30. (Original) The method of Claim 26, wherein generating a compensated analog readout depends on a temperature of the system.

31. (Original) The method of Claim 26, wherein the pixel sensor elements are associated with the colors of red, blue and green.

32. (Original) The method of Claim 31, wherein the array of pixel sensor elements is arranged in a plurality of rows and columns and the act of generating comprises:

generating an independent readout for even numbered

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5 rows;

generating an independent readout for odd numbered  
rows;

generating an independent readout for even numbered  
columns; and

10 generating an independent readout for odd-numbered  
columns, such that at least one element associated with a  
red filter component is coupled to a first programmable  
gain amplifier, at least one element associated with a blue  
filter component is coupled to a second programmable gain  
15 amplifier, and at least one element associated with a green  
filter component is coupled to a third programmable gain  
amplifier.

33. (Original) The method of Claim 26, wherein the act of  
generating comprises generating a plurality of  
substantially simultaneous, independent readouts for the  
set of rows and the set of columns.

34. (Canceled)

35. (Currently Amended) A color imager comprising:

a set of sensor elements, wherein at least one of  
said elements is associated with a first color, at least



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one of said elements is associated with a second color, and  
5 at least two of said elements is associated with a third  
color;

a first amplifier configured to compensate for said  
first color;

a second amplifier configured to compensate for said  
10 second color;

an analog summing amplifier coupled to said two  
elements associated with said third color and outputting an  
analog sum of said two elements;

a third amplifier configured to compensate for said  
15 third color; and

an array controller which selectively couples  
elements associated with the first color to the first  
amplifier, said array controller selectively couples  
elements associated with the second color to the  
20 second amplifier, and said array controller selectively  
couples elements associated with the first third color to  
the third amplifier wherein said array controller directs  
said readout of said first, second, and third color sensor  
elements in a selected window of said array while other  
25 sections of said array are not processed wherein said array  
controller uses a programmable digital pattern generator to  
determine said selected window.

36. (Original) The color imager of Claim 35, wherein the sensor elements are arranged in rows and columns.

37. (Canceled)

38. (Canceled)

39. (Currently Amended) A method of interpolating a color value in the analog domain in realtime, comprising:

modifying a first analog signal corresponding to the output of a first pixel element in an imager to color  
5 correct the first pixel, the first pixel element used to sense light intensity of a first color; and

modifying a second analog signal corresponding to the output of a second and a third pixel element in the imager to color correct the second and third pixels, wherein the  
10 second and third pixel elements are used to sense light intensity of a second color and wherein said second analog signal is a sum of said second and third pixel elements wherein only a selected window of said imager is processed while other regions of said imager are not processed  
15 wherein said selected window is determined by a programmable digital pattern generator.

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40. (Original) The method as defined in Claim 39, further comprising modifying a third analog signal corresponding to the output of a third pixel element in the imager to color correct the third pixel.